

S/N: 10/690,259
Reply to Office Action of August 24, 2005

Any Dkt No. CCCI 0110 PUS

Remarks

Claims 1-56 are pending in this application. Claims 1-56 have been rejected in the Final Office Action. Applicants believe that the invention is patentable.

Claims 21, 24-27, 49 and 52-55 stand rejected under 35 U.S.C. § 112, second paragraph. In the previous Reply, Applicants argued that the Specification clearly describes packet rate, data rate, flow in terms of packets, and flow in terms of data. In the Final Action, it appears that the Examiner has not responded to these previously presented arguments. For reasons given previously, Applicants respectfully request that the Examiner withdraw the rejections under 35 U.S.C. § 112, second paragraph.

Claims 1-3, 9-10, 13, 29-31, 37-38 and 41 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tang (U.S. Patent No. 6,373,824). Regarding independent claims 1 and 29, these claims recite combinations including "dynamically adjusting the token bucket configuration for the subscriber based on the demand," while the remaining claims are dependent claims. Tang fails to suggest dynamic adjustment of the token bucket configuration for the subscriber based on the demand.

In the Final Action, the Examiner makes specific reference to Tang, column 3, lines 1-15. The Examiner states that Tang discloses the adjustment of the token bucket configuration for the subscriber based on the demand "in real time." Column 3, lines 1-15, describes measuring the rate and the burstiness of traffic and notes that the traffic source need not be a token bucket shaper. In more detail, this portion of Tang describes measuring both the rate (r) and the burstiness (b) of traffic. According to Tang, it is possible to find b as a function of r using techniques of complexity $O(n)$. According to Tang, conventional algorithms are of complexity $O(n \log n)$, wherein n is the number of packets in the traffic pattern. By reducing complexity to $O(n)$, Tang states that computations may be performed efficiently and in real time.

S/N: 10/690,259
Reply to Office Action of August 24, 2005

Atty Dkt No. CCCI 0110 PUS

Tang is discussing performing computations in real time. These computations performed by Tang are computations to determine rate (r) and burstiness (b) of traffic. Tang is observing packet traffic, and making computations based on the observations. Tang only computes r and b and makes no suggestion at all of the claimed combinations including dynamic token bucket configuration adjustment for the subscriber based on the demand.

Tang is not dynamically adjusting the token bucket configuration. Tang is only observing packet traffic, and performing computations based on the observations. These computations are performed in real time. However, there is no dynamic token bucket configuration adjustment for the subscriber based on the demand as recited in the combinations claimed by Applicants.

Claims 4 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang. These claims are dependent claims and are believed to be patentable.

Claims 5-8, 14-20, 33-36 and 42-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang in view of Wang (U.S. Patent No. 6,748,435). Independent claims 17 and 45 recite the dynamic adjustment of the token bucket configuration which is not suggested by Tang for reasons given above. Wang also fails to suggest dynamic adjustment of the token bucket configuration for the subscriber based on the demand. Thus, Wang fails to overcome the deficiency of Tang. The remaining claims are dependent claims.

Claims 11-12, 21-22, 39-40 and 49-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang in view of Liu (U.S. Patent Application No. 2004/0081095 A1). Independent claims 21 and 49 recite a first token bucket using tokens to regulate the packet flow in terms of packet rate and a second token bucket using tokens to regulate the packet flow in terms of data rate such that a particular packet is subjected to handling in accordance with both the first token bucket and the second token bucket, in combination with other limitations. The remaining claims are dependent claims.

S/N: 10/690,259
Reply to Office Action of August 24, 2005

Atty Dkt No. CCC1 0110 PUS

Applicants previously presented arguments included pointing out that the claimed subject matter is more detailed than simply using multiple regulators.

In the Final Action, the Examiner states that "each packet has a defined number of bits or bytes of data. Then, the packet rate, which is the number of packets transmitted per time unit, can be converted into bits or bytes of data transmitted per time unit, that is the data rate. Therefore, the modified assembly of Tang and Liu discloses limitations claimed in claims 21 and 49."

Applicants disagree, and believe that Tang and Liu fail to suggest the claimed subject matter. The Examiner states that the packet rate can be converted into the data rate because each packet has a defined number of bits or bytes of data. This is not necessarily true. Packets do contain data; however, it is well known that in a stream of packets the various packets may be of varying sizes, that is, may contain different amounts of data. Because the packets in a stream of data may contain different amounts of data, the claimed specific arrangement of first and second token buckets handles flow in a way that is not suggested by the prior art, and is more detailed than simply using multiple regulators.

Claims 23-28 and 51-56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang in view of Berger (U.S. Patent No. 5,274,644). Independent claims 23 and 51 recite "the amount of tokens to be removed being based on the amount of the flow and further being based on a classification of the flow," in combination with other limitations. The remaining claims are dependent claims.

In the Final Action, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the banks together to form a single and bigger bucket to regulate the traffic. The Examiner further states that there is no invention in shifting the location parts, and that in this case, combining the banks together would not change the traffic regulation function.

S/N: 10/690,259
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Atty Dkt No. CCCI 0110 PUS

Berger describes rate-based multi-class access control. Berger does describe the use of a token bank per class, plus a spare bank. Simply combining the banks together just results in one big token bank. Using one big bank still does not achieve the claimed invention. The claimed invention is not just one big token bank, but involves removing tokens based on the amount of the flow and further based on a classification of the flow. The invention is not just about traffic regulation, the invention is about a particular approach to traffic regulation. "Shifting the location parts" of Berger does not achieve the claimed invention, and only achieves a big token bank.

The claimed invention involves using the same token bucket, but the amount of tokens being removed is based on the amount of the flow and further based on a classification of the flow. There is clearly no suggestion to modify Berger to combine the token banks and then to remove tokens from the combined bank based on the amount of flow and further based on a classification of the flow. After all, to account for multiple flow classifications, Berger teaches using a token bank per class.

For reasons given above, and in the previous Reply, Applicants believe that the invention is patentable and that claims 1-56 are in condition for allowance.

Respectfully submitted,

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